established in Narragansett Bay. The instruments for a compass testing-house are now in the possession of the Bureau, and a building will be erected when the appropriation is made. In view of the probable necessity of compensating the compasses of these new vessels, a binnacle has been designed in the Bureau for this purpose, and it will be placed in the *Dolphin* to be tested.

In accordance with a recommendation of the recent Geodetic Conference, we learn from *Science* a series of observations for latitude is to be made at the U.S. Naval Observatory, which, taken in connection with a similar series made elsewhere, and compared with observations made after an interval of some years, will assist in determining whether there are any slow changes taking place in latitudes upon the earth. Lisbon, which is very near the same parallel as Washington, is expected to co-operate with the Naval Observatory. The observations will be made with the prime vertical instrument; and at Washington a line officer of the navy will be detailed for the work, which will probably require several years.

At University College, London, Dr. J. A. Fleming will commence a course of lectures and demonstrations on Modern Applications of Electricity in the Arts, on Friday, February 6, at 4 p.m. The first lecture will be open to the public without payment or tickets.

The *Revue Scientifique* now publishes a weekly supplement containing reports of the proceedings of the Paris scientific societies; this supplement may be obtained separately.

The additions to the Zoological Society's Gardens during the past week include a Moose (*Alces machlis*) from Russia, presented by Mr. Evelyn Hubbard; a Goshawk (*Astur palumbarius*), British, presented by Mr. W. H. St. Quintin, F.Z.S.; a Pink-footed Goose (*Anser brachyrhynchus*), British, presented by Major W. H. Fielden, C.M.Z.S.; two Yaks (*Poephagus grunniens*) from Tibet, six Dunlins (*Tringa alpina*), British, purchased.

GEOGRAPHICAL NOTES

At the meeting of the Paris Geographical Society on the 9th inst. M. Maunoir read a paper on the explorations of Capt. Aymonier in Indo-China in 1883 and 1884, during which he collected many epigraphical documents and notes on Northern Laos and the basin of the Mouna. On December 10 the traveller was to leave Saigon for Binh-Thuan, in the extreme south of Annam, to study the monuments left behind by the Cham. It is wholly new ground. A letter was read from the French Consul at Zanzibar giving the latest geographical news from Eastern Africa. M. Deloncle summarised his recent exploration in Malacca. M. Paul Fauque, who is charged by the Ministry of Education with a scientific mission to Sumatra, described the results of his journey, and gave more details on the character, manners, and customs of the natives of the Siak country and of the Kingdom of Acheen. He added much valuable information on the geography, natural history, and mineralogy of this great island. His collections are to be distributed amongst various museums in France. The following medals were awarded:—A gold medal to M. de Foucauld for his journey in South Morocco and his exploration of the southern extremity of the Atlas Mountains; a gold medal to Dr. Neis for four journeys in Indo-China and in the hitherto unexplored parts of Laos; the La Roquette prize to the Danish summary of geological and geographical enterprises in Greenland (*Meddelelser om Grœnland*); the Jomard prize to M. Leroux, the publisher, for the volume of documents on the history of geography from the thirteenth to the sixteenth century; and the Echard prize to M. Dumas Vorzet for maps and cartographical labours. M. Allain referred to the defectiveness of geographical education in some public educational establishments, and advised that all the State libraries in Paris should be provided with as complete a collection as possible of geographical works.

The editor of *Petermann's Mittheilungen* has issued a circular with the January number of his journal, giving notice that in future the monthly parts will consist of three main sections: (1) Original papers, as heretofore; (2) a monthly report of the advances of geographical discovery and colonisation in countries outside Europe; (3) a literary section referring to recent geographical and cartographical works, with the exception of pure travels, which will be dealt with in the second section. The valuable supplementary parts (*Ergänzungshefte*) will be continued as before.

The report has been published of a journey by four French officers among the Muongs of the Black River, which enters the Red River of Tonquin a little below Sontay. These tribes are described as more civilised than the Moïs of Cochin China; they are practically independent, although the Annamites profess to appoint their chiefs; they are very warlike, intelligent, and industrious, making their own arms, which are sometimes very beautiful. After having acquired all the information they could as to Muong silk and silk manufactures, the travellers explored the mountainous regions among the district. There are gold mines in the hills worked by Chinese, but at some of them they have armed themselves in great numbers since the recent troubles, and will allow no one, French or Muong, to approach them. The members of the expedition, however, saw enough to convince them that the district is rich in minerals, especially gold.

The Argentine expedition to the Chaco will, it is stated, have the result of adding a large territory to civilisation and agriculture. This forms for the most part the basin of the Rio Bermejo, or Red River, which flows down from the Andes, and commences to be of importance towards the 61st degree of longitude. Soon after it receives the waters of the Tenco, and should be navigable unless its bed is obstructed by the trunks of trees and if it does not traverse lagoons where its channel will be difficult to find. It flows in a south-westerly direction, and enters the Rio Paraguay after a course of about 500 kilometres. The districts through which it flows are well-wooded; they are inhabited by tribes of Indians, whose favourite weapon is the arrow, and who, when they do not live by hunting and fishing, exist on the locusts which abound and on the cattle which they can contrive to steal from the Argentines. The number of inhabitants of this part of the Chaco is estimated at 10,000.

Globus publishes a letter from Dr. Claus, a member of the Steinen expedition into one of the most unexplored parts of Brazil. It was for some time doubtful whether the expedition was examining the Xingu, or some other neighbouring tributary of the Amazon. It appears now that the Xingu was the river explored. On May 26, 1884, the expedition left Cuyabá, the capital of the Brazilian province, Matto Grosso, arrived on July 20 at Rio Batovy, and in the end of October at Pará, at the mouth of the Amazon. Dr. Claus writes that they completely carried out their programme. After a journey of two months from Cuyabá, they sailed in canoes down a small river, which, according to the maps, should belong to the Xingu region. The districts around the source of this river are inhabited by numerous tribes who have never met with white men, and who use only implements of stone and bone. At the 12th parallel they came on the Xingu. The cataracts caused the travellers the utmost difficulty, and they also suffered much from hunger. For a whole month they had nothing but beans to eat. During part of the descent of the Xingu, also, they met with the same troubles and privations; but towards the end of their journey they fared much better, passing along from one Indian village to another. On October 15 they arrived at the first Brazilian settlement on the 4th parallel. The head of the expedition has a large collection of Indian objects, and the collections of the others, though much damaged by water, are otherwise safe.

Mr. Wm. Cameron, F.G.S., an indefatigable explorer of Malayan countries, has just prepared, at Singapore, a large and elaborate map, on a scale of half an inch to the mile, of districts recently explored by him in Selangor, Ulu Selangor, Sungei Ujong, and other parts of the Malay Peninsula. The map is said to be excellently drawn up, and to be a valuable acquisition to our existing geographical knowledge of the Malay Peninsula, which is somewhat limited.

A geographical conference is about to be held in Melbourne on the occasion of the first annual meeting of the Victorian branch of the Geographical Society of Australia. Members of the general council of the Society, as well as of the local councils

of the New South Wales and Victorian branches, are invited. Among the subjects to be discussed are the necessity of defining the exact meaning of the geographical term Australasia, the compilation of a reliable work on the geography of Australia for Australian schools, the exploration of New Guinea, and the discovering and defining of the exact boundaries of what may now be termed British New Guinea.

ASTRONOMICAL PHENOMENA FOR THE WEEK

1885, FEBRUARY 1–7

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on February 1

Sun rises, 7h. 40m.; souths, 12h. 13m. 53·2s.; sets, 16h. 47m.; decl. on meridian, 16° 58′ S.: Sidereal Time at Sunset, 1h. 35m.

Moon (2 days past Full) rises, 18h. 22m.*; souths, 1h. 23m.; sets, 8h. 12m.; decl. on meridian, 8° 21′ N.

Planet	Rises h. m.	Souths h. m.	Sets h. m.	Decl. on Meridian ° ′
Mercury	6 31	10 33	14 35	22 3 S.
Venus	6 37	10 39	14 41	22 3 S.
Mars	7 52	12 24	16 56	17 21 S.
Jupiter	18 34*	1 37	8 40	11 28 N.
Saturn	12 14	20 17	4 20*	21 32 N.

* Indicates that the rising is that of the preceding, and the setting that of the following nominal day.

Occultations of Stars by the Moon

Feb.	Star	Mag.	Disap. h. m.	Reap. h. m.	Corresponding angles from vertex to left ° °
1	B.A.C. 3529	6	4 16	5 20	90 292
1	*d* Leonis	5	20 1	20 57	31 218
2	B.A.C. 3836	6	3 29	4 41	76 276
2	75 Leonis	5½	5 26	6 28	116 267
2	76 Leonis	6	6 29	7 25	81 312
5	B.A.C. 4591	6	3 13	4 11	95 199

Phenomena of Jupiter's Satellites

Feb.	h. m.		Feb.	h. m.	
1	5 46	I. tr. ing.	3	23 41	I. occ. reap.
2	2 33	I. ecl. disap.	4	0 9	II. ecl. disap.
	5 15	I. occ. reap.		3 49	II. occ. reap.
	6 6	II. tr. ing.		18 38	I. tr. ing.
	22 8	IV. ecl. disap.		20 57	I. tr. egr.
3	0 12	I. tr. ing.	5	19 13	II. tr. ing.
	2 31	I. tr. egr.		22 8	II. tr. egr.
	6 25	IV. occ. reap.	6	2 37	III. tr. ing.
	21 1	I. ecl. disap.		6 13	III. tr. egr.

Saturn, February 1.—Outer major axis of outer ring = 44″·5; outer minor axis of outer ring = 20″·1; southern surface visible.

February 1, 7h.—Jupiter in conjunction with and 4° 9′ north of the Moon.

SCIENCE IN VICTORIA

THE President of the Royal Society of Victoria devoted a considerable portion of the presidential address contained in the last published volume of the Society's *Transactions* to a review of the progress of science in the colony. It might at first sight be supposed that, in young communities like those of the Western States of America or of our own Australasian colonies, the struggle to develop their resources to the utmost, which occupies every one, and the total absence of a leisured class, would be an insurmountable obstacle to scientific work, or indeed to work of any kind for its own sake. But the numerous and valuable publications which we constantly receive from scientific societies formed among young English-speaking communities all over the globe—in Japan, China, the Straits, Ceylon, Australia, Canada, the United States, the Cape, and many other places—show that this impression is wholly incorrect, and that the members carry with them into scientific work the energy and perseverance which they exercise in their ordinary avocations.

The first sign of progress which Mr. Ellery had to chronicle in his address was that the Royal Society had grown too large for its building, and consequently the more spacious rooms of the Melbourne Athenæum had to be selected for the annual address. The number of members has increased annually, and the financial condition of the Society is satisfactory. During the year under review there has been "a vigorous and healthy progress," but the young body, having outgrown its juvenile garments, must provide itself with more capacious ones in the shape of considerable additions to the Royal Society house. In the several national scientific and technical departments the year has been one of active labour, and their progress, in common with that of the Society, has been considerable. There is, the President reports, an undoubted and general increase in the desire for knowledge in the various pure and applied sciences, and especially as applied to technical training and to the daily requirements of life. New societies for the prosecution of study and research, more especially in the natural sciences, have come into existence in the provinces, and the older societies and schools are increasing in their influence and usefulness. The School of Technology and the technological museums at Melbourne are growing rapidly. An example of the great economic benefits of such institutions was afforded during the year under review by the opening of a new trade between Victoria and India wholly on account of the knowledge derived in Melbourne from the museum collection of Indian woods, and it is anticipated that a like result will accrue from a collection of colonial economic woods sent to Calcutta. In Ballarat and Sandhurst the schools of mines are important centres of teaching in the arts and in applied and natural sciences. In Melbourne itself the Medical and Pharmaceutical Societies, the Microscopical Society, and especially the Field Naturalists' Club, have partaken in the general progress.

The President then comes to the question of what has actually been done in Victoria during the year towards the advance of natural science. The first person referred to in this connection is Baron Mueller, to whose research is due a large proportion of what is known of Australian botany. He succeeded in getting the Colonial Government to purchase for the Botanical Museum the collection of Dr. Sanders of Hamburg, a leading authority on algæ, and on European and North African botany. Valuable additions, illustrative of the flora of the western coast districts of Australia, were made to the same museum, which has really been formed by Baron Mueller himself from his collections, extending over nearly forty-four years. Among new publications of the year were additions to the "Fragmenta Phytographia Australis," a continuation of the "Systematic Atlas of the Eucalypti," a new edition of a work on "Select Plants for Industrial Culture," and "A Systematic Census of Australian Plants." A second volume of the vegetable fossils of the auriferous drifts was completed, and in its pages are described and compared most of the fossil fruits of the Pliocene period. A vast field of investigation still remains in the fossil foliage of the Miocene deposits. With a reference to the work of the Melbourne Observatory during the year the president closes that portion of the address with which we are specially concerned here. At the end of the address he argues that the Royal Society is broad enough in its constitution to embrace all sciences, and that, therefore, various sections in connection with it should be formed rather than new societies for each science. The community is not, he thinks, yet large enough to maintain, in an effective state, a number of scientific societies; and if all in Victoria interested in the progress of science, or engaged in her various byways, were to unite together, not only would more useful work be done, but the work would be more valuable, on account of being subjected to a wider criticism. All the colonial scientific societies combined would form a strong body, capable of fostering and even subsidising scientific research. In one respect, perhaps, the wheels of the Society might run more smoothly. The volume (a rather small one) of the *Transactions* for 1883 was not issued till May 30, 1884, and was not delivered in London until more than six months later.

THE KILIMANJARO EXPEDITION

AT a meeting of the Royal Geographical Society held on Monday night, Mr. H. H. Johnston gave a description of his visit to Kilimanjaro, on the slopes of which he spent more than five months in the summer and autumn of last year.

Mr. Johnston began by explaining the circumstances in which, as appointed leader of the expedition projected by the joint Kili-